WTCI-174-P

WPM-6441
Egress Analysis

MORGAN STANLEY et al

Quality Assurance Division
Design Standards

TAA No. _____ Charge Code: _____

Tenant: _____

REVIEW STATUS

Submission No. & Date	Response To	Coordinator's Initial	Memo Date	Approval Date	Facility Rider	Outstanding Comments	Remarks/Status	DWG/SPEC Location
								IN-FOLDER

THE PORT AUTHORITY OF NY & NJ

Memorandum

TO: **Teresa Koebel, Manager, World Trade Project Management**
FROM: C. John Lin
DATE: December 14, 1999
SUBJECT: **WTC– ALTERATION APPLICATION WPM-6441 – MORGAN STANLEY DEAN WITTER – 2 WTC – 43 RD FLLOR – EGRESS ANALYSIS**
REFERENCE: Review Request dated 12-7-99

COPY TO: A. Fadavi, J. Napolitano, J. Richardson, Chrono Folder, Job Folder

A review of the material listed below and submitted with the referenced request has been made.

It is recommended that **approval** to proceed with construction be granted.

There are no comments.

Drawing:

REMARKS: 1) Drawing EA-1 is recommended for approval.

2) This memorandum was transmitted to the Facility via Outlook on December 14,1999.

for Quotchel Calabro
C. John Lin, P.E.
Manager
Quality Assurance Division

I.D.: WPM-6441-000
DR/lm
att.

Reviewer:
D.Remeta, Coordinator and Architectural.

Revised 11/99

THE PORT THORITY OF NEW YORK AND W JERSEY
TENANT ALTERATION APPLICATION REVIEW REQUEST

12/14

DISTRIBUTION		
No.	To	Facility
~~2~~	QAD	PATC Zip 73
~~1~~	D. Warren	PATC Zip 43
1	E.P. Chiao	88 S
1	G. Daly	88 S
1	B. Brown	88 S
1	E. Corneliuz/Nick Strenk - LERA	2 WTC 37th Fl
1* 1*	R. Simonetti CADD Disk Set	2 WTC 37th Fl.
1	F. DeMartini	88 S
1	P. Negron	2 WTC 37th Fl
1	S. Batra	2 WTC 37th Fl
1	C. Semah	2 WTC 35th Fl

Facility 2WTC Floor 43FL TAA No. WPM 6441 Date 12/7/99

Application/Tenant MORGAN STANLEY / TEAM WITTER 5 DAY REV

Consultant DESIGNERS QUAD GROUP

Estimated Cost _____ Submittal No. ONE

Description of Work

NO CONSTRUCTION
ONLY ANALYSIS REVIEW

NO LATER THAN
12/14/99
Due Date

OFFICE COPY

*** for each submission**

Please review the attached (revised) application and send comments to:

Name: Carlo J. Saavedra

Location: 1 WTC, 88S Phone No. 435-2922
Fax No.: 435-8168

DESIGN DISCIPLINES
- [ ] Architectural
- [ ] Egress Analysis
- [ ] Structural
- [ ] HVAC
- [ ] Plumbing
- [ ] Sprinkler
- [ ] Electrical
- [ ] Utility > 600 V
- [ ] Civil
- [ ] Geotechnical
- [ ] Environmental
- [ ] Fueling
- [ ] Radio Freq. Coord.
- [ ] Corrosion Protection
- [ ] Elevator/Escalator
- [ ] Other

ATTACHMENTS
- [ ] Document List
- [ ] Contract Drawings
- [ ] Contract Specifications
- [ ] Tenant Response
- [ ] Computations
- [ ] Reports
- [ ] Catalog Cuts
- [ ] Other

DESCRIPTION

THE PORT AUTHORITY OF N.Y. & N.J.
ENGINEERING QUALITY ASSURANCE DIV.
DESIGN STANDARDS

DEC - 8 1999
WPM - 6441 (0)
RECEIVED
ALTERATIONS APPLICATION
CONSTRUCTION REVIEW UNIT

SPECIAL INSTRUCTIONS

SINGLE DISCIPLINE (ARCH.)
EGRESS ANALYSIS.
AS PER OUR AGREEMENT
LESS THAN 5 DAYS.

Copy to: R. Benacchio, T. Koebel, J. Napolitano, L. Menno, E. Monteverde, J. Richardson, J. Ruiz, N. Seliga, F. Varriano

_____ (Proj. Mgr.)
_____ (Zone Prop. Mgr.) JOE NAPOLITANO

_____ Signature

10-7285

THE PORT AUTHORITY OF NY & NJ

One World Trade Center
New York, N.Y. 10048

Engineering Department
Eugene J. Fasullo, P.E.
Director of Engineering &
Chief Engineer

(212) 435-7449
(201) 961-6600 x7449

January 27, 1995

Mr. Richard C. Visconti, R.A.
First Deputy Commissioner
New York City Department of Buildings
60 Hudson Street
New York, New York 10013

Dear Commissioner Visconti:

Thank you for the time you spent with Port Authority (PA) staff on December 6, 1994 to discuss the proposed design plan (the "design plan") for the Windows on the World Restaurant located on the 106th and 107th floors of the World Trade Center. We discussed with you:

- The PA's proposal to divide the entire floor, on each of the two Restaurant floors, into three (3) areas of refuge in accordance with Section 27-372 of the Administrative Code that will provide additional vertical exit capacity to the existing stairs in accordance with the exit reduction allowances of Section 27-367 of the Code;

- Each area of refuge is separated by a two hour fire rated separation;

- In one (1) area on each of the Restaurant's floors, the capacity of the stair within the area is less than one third of the proposed occupant load of that area.

Following this discussion, you and Mr. Trivisonno, also of the Department of Buildings, stated that the proposed design is acceptable and conforms to the New York City Building Code due to the fact that on each floor each area of refuge has access to its "own" exit stair within the area, to the other two (2) areas of refuge, and additionally to an elevator, and our calculations of the egress facilities demonstrate that the code allowed capacity of all three stairs is sufficient to permit safe egress for the occupant load from each area and from the entire floor. You further indicated that the exit doors should swing properly in the direction of egress.

Attached are reduced versions of the two plans entitled "106th Floor Egress Plan" and "107th Floor Egress Plan" used for this discussion.

If you find the above to be a fair and accurate summary of the meeting, I would appreciate your concurrence.

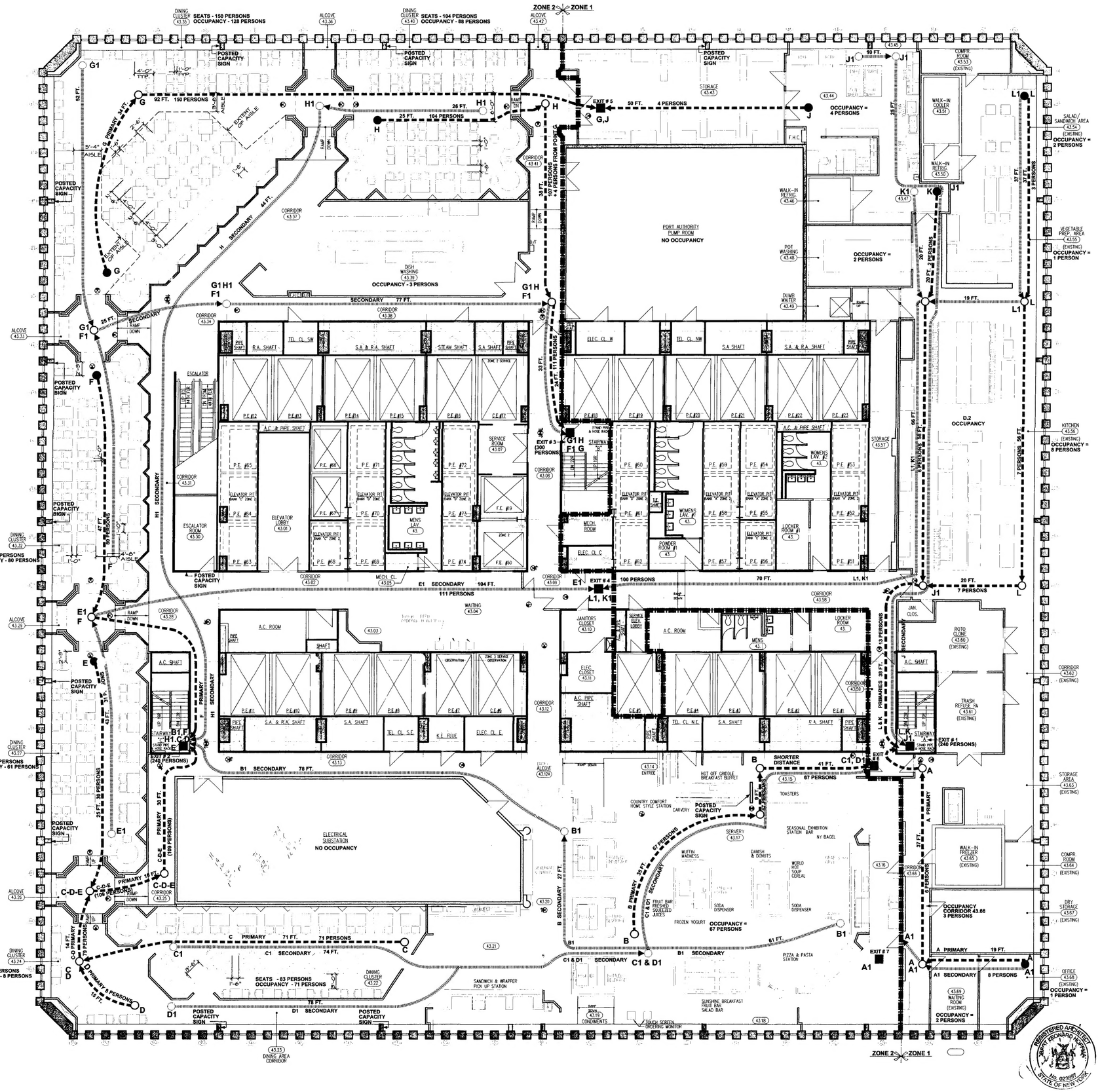
Very truly yours,

Eugene J. Fasullo, P.E.
Director of Engineering &
Chief Engineer

CONCURRED:

Richard C. Visconti, First Deputy Commissioner
New York City Department of Buildings

Att.



LEGEND

- EXIT POINT
- PRIMARY STARTING POINT FOR TRAVEL
- A — PRIMARY AND/OR SECONDARY CHANGE OF DIRECTION MODE
- A1 — SECONDARY STARTING POINT FOR TRAVEL

OCCUPANCY TABULATION

OCCUPANCY LOADS HAVE BEEN DEVELOPED TO REALISTICALLY REFLECT THE ACTUAL MAXIMUM POPULATION AT PEAK PERIODS. THE METHOD IS CALCULATED AS FOLLOWS:

(A) AN ACCEPTED INDUSTRY STANDARD 85% MAXIMUM EFFICIENCY FACTOR HAS BEEN APPLIED TO TOTAL SEAT COUNT. THIS REFLECTS THE FACT THAT THERE IS NEVER A 100% USAGE OF SEATS SINCE 2-PERSON TABLES WILL HAVE SINGLE OCCUPANT USE AND 4-PERSON TABLES WILL HAVE 3-OCCUPANT USE.

(B) AN ACCEPTED INDUSTRY STANDARD 10% CIRCULATION FACTOR BASED UPON THE ADJUSTED SEAT COUNT HAS BEEN ADDED TO THE OCCUPANCY LOAD AND ASSIGNED TO THE SERVERY.

(C) ACTUAL STUFF COUNTS ARE ASSIGNED TO VARIOUS WORK LOCATIONS.

ZONE 1

A. SERVICE AREA

43.43	STAND-IN CLUSTER	4
	SUBTOTAL	4

B. SERVICE AREAS

43.48	POT WASHING	2
43.54	SALAD PREPARATION	2
43.55	VEG. PREPARATION	1
43.56	KITCHEN	6
43.66	CORR./STORAGE	3
43.65	OFFICE	1
43.64	WAITING ROOM	2
	SUBTOTAL	19
	TOTAL	25

ZONE 2

A. DINING AREAS

43.22	DINING CLUSTER	71
43.24	DINING CLUSTER	8
43.27	DINING CLUSTER	61
43.32	DINING CLUSTER	80
43.35	DINING CLUSTER	126
43.40	DINING CLUSTER	88
	SUBTOTAL	456

B. SERVICE AREAS

43.11	SERVERY	67
43.34	DISH WASHING	3
	SUBTOTAL	70
	TOTAL	526

ZONE 1

MEANS OF EGRESS - EXIT # 1 (STAIR # 1) - 120 PERSONS
AS PER NYC CODE C26-605.5 - ACCESS TO AREA OF REFUGE - EXIT REDUCTION. × 2
TOTAL AVAILABLE OCCUPANCY LOAD 240 PERSONS
NOTE: OCCUPANCY LOAD WITHIN CODE GUIDELINES (SEE OCCUPANCY TABULATIONS FOR ZONE 1)

ZONE 2

MEANS OF EGRESS - EXIT # 2 (STAIR # 2) - 120 PERSONS
MEANS OF EGRESS - EXIT # 3 (STAIR # 3) - 150 PERSONS
AS PER NYC CODE C26-605.5 - ACCESS TO AREA OF REFUGE - EXIT REDUCTION. × 2
TOTAL AVAILABLE OCCUPANCY LOAD 540 PERSONS
NOTE: OCCUPANCY LOAD WITHIN CODE GUIDELINES (SEE OCCUPANCY TABULATIONS FOR ZONE 2)

GENERAL NOTES:

- ALL SPACES CLASSIFIED UNDER OCCUPANCY GROUP F-4 UNLESS OTHERWISE INDICATED.
- ALL THIRD AND FOURTH LEG DISTANCES HAVE BEEN ADJUSTED TO REFLECT PENALTIES.
- EACH LEG CARRIES ACCUMULATED AMOUNT OF PERSONS TRAVELING FROM THEIR MOST REMOTE STARTING POINT.
- NOTE THAT SINCE THIS ASSEMBLY SPACE IS EQUIPPED WITH AUTOMATIC SPRINKLERS, THE PRIMARY AND SECONDARY DISTANCES IS INCREASED BY 50%, PRIMARY - 121 FT., SECONDARY - 167 FT. PER NYC CODE TABLE 8-1

POINT OF EGRESS

EXIT # 1/STAIR # 1

AVAILABLE CAPACITY OF EGRESS - 240 PERSONS
TOTAL PERSONS TRAVELING TO EXIT # 1 - 14 PERSONS

TOTAL DISTANCE

FROM POINT	A	K	L	J1
PRIMARY PATH	70	151	166	
SECONDARY PATH				180

* D-2 OCCUPANCY GROUP PER N.Y.C. CODE TABLE 8-1 MAXIMUM TRAVEL DISTANCE - 200 FT.

EXIT # 2/STAIR # 2

AVAILABLE CAPACITY OF EGRESS - 240 PERSONS
TOTAL PERSONS TRAVELING TO EXIT # 2 - 164 PERSONS
TOTAL DISTANCE

FROM POINT	C	D	E	B1	F	H1
PRIMARY PATH	131	75	76		91	
SECONDARY PATH				166		138

EXIT # 3/STAIR # 3

AVAILABLE CAPACITY OF EGRESS - 300 PERSONS
TOTAL PERSONS TRAVELING TO EXIT # 3 - 111 PERSONS
TOTAL DISTANCE

FROM POINT	H	F1	G1
PRIMARY PATH	97		
SECONDARY PATH		135	187

EXIT # 4 AT CORRIDOR 43.09 (ZONE 1; ZONE 2) - AREA OF REFUGE

AVAILABLE CAPACITY OF EGRESS - 200 PERSONS (100 EACH ZONE)
TOTAL PERSONS TRAVELING TO EXIT # 4 - 111 PERSONS
TOTAL DISTANCE

FROM POINT	K1	L1	E1
PRIMARY PATH			
SECONDARY PATH	162	187	147

EXIT # 5 AT ALCOVE 43.42

AVAILABLE CAPACITY OF EGRESS - 250 PERSONS (150 ZONE 2, 100 ZONE 1 - AREA OF REFUGE
TOTAL PERSONS TRAVELING TO EXIT # 5 - 150 PERSONS, (ZONE 2) - 4 PERSONS, (ZONE 1)
TOTAL DISTANCE

FROM POINT	G	J
PRIMARY PATH	126	50
SECONDARY PATH		

EXIT # 6 AT CORRIDOR 43.59 (ZONE 2) - AREA OF REFUGE

AVAILABLE CAPACITY OF EGRESS - 100 PERSONS
TOTAL PERSONS TRAVELING TO EXIT # 6 - 67 PERSONS
TOTAL DISTANCE

FROM POINT	B	C1	D1
PRIMARY PATH	85		
SECONDARY PATH		136	140

EXIT # 7 AT CORRIDOR 43.66 (ZONE 1) - AREA OF REFUGE

AVAILABLE CAPACITY OF EGRESS - 75 PERSONS
TOTAL PERSONS TRAVELING TO EXIT # 7 - 8 PERSONS
TOTAL DISTANCE

FROM POINT	A1
PRIMARY PATH	
SECONDARY PATH	32

OCCUPANCY = 529 PERSONS

ALL INFORMATION SHOWN WAS OBTAINED FROM PREVIOUSLY APPROVED DRAWING A.43.6A DATED 4-27-88 SUBMITTED BY NEVILLE LEWIS ARCHITECTS.

MORGAN STANLEY DEAN WITTER
FACILITIES DEPARTMENT
2 WORLD TRADE CENTER
NEW YORK, N.Y. 10048
56th FLOOR

ISSUED

NO.	DATE	TO WHOM ISSUED
1	11-12-99	ISSUED TO P.A.N.Y.N.J. & MSDH

DESIGNERS QUAD GROUP, P.C.
20 WEST 38th STREET • NEW YORK, NEW YORK 10018 • TEL. (212) 730-6836

WTW-6991 (C)

NO.	DATE	DESCRIPTION

REVISIONS

PROJECT
MORGAN STANLEY DEAN WITTER
2 WORLD TRADE CENTER
NEW YORK, NEW YORK 10048
43RD FLOOR

DRAWING
EGRESS ANALYSIS PLAN

DRAWN BY: M. KHOLCHANSKIY	DATE: 9-30-99
CHECKED BY: J. GRIMA	SCALE: 1/8"=1'-0"
APPROVED BY:	JOB NO.: 9948
NORTH	SHEET NO.: EA-1

REGISTERED ARCHITECT JERRY LEONARD JOPPIA No. 023997 STATE OF NEW YORK

F:\PROJECTS\9948\9948EA-1.dwg Thu Nov 11 14:33:07 1999

PLOT FILE: X